TRADE DEPENDENCE WITHIN GREATER CHINA: ECONOMY AND TRADE BETWEEN MAINLAND CHINA, TAIWAN AND HONG KONG

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ABSTRACT

This paper attempt at applying the gravity model to identify the evolution of a trading block within Greater China, including Mainland China, Taiwan and Hong Kong, for the era after the openness of Mainland China. Special attention is paid on the role of special economic and political events in shaping the greater Chinese circle's trade pattern. The major findings are as follows, Firstly, this study clearly shows that under the current political restrictions on both sides of the strait, the trade flows reflect the highly-developed economic and trade relations between Mainland China, Taiwan and Hong Kong. Second, Our empirical results show that the important role of Hong Kong as an agent in facilitating the trade within greater China since 1987. Finally, the application of gravity model to both sides of the straits trade flows reflects the intensity of trade both sides of the straits, this is represents the market power breaking through the regulation of government policies.

Contribution/ Originality: This study is one of very few studies which have investigated the changes in the trade-related dependence on both sides of the strait at the same time as the exchange of leaders by the Taiwan authorities. This kind of demarcation has not been used in the previous articles.

1. INTRODUCTION

Since 1987 the reform process started and an opening-up policy was adopted, the economic and trade relations of both sides of the straits has developed rapidly. Mainland China has become Taiwan's largest trade surplus source, and Taiwan is also the largest trade deficit in Mainland China. Mainland China and Taiwan not only have the same language, the same historical and cultural background, natural relations of blood and geography. Although there are still many political controversy both sides of the straits, economic and trade exchanges through the indirect relationship of Hong Kong is still growth very rapidly, the Greater Chinese circle trade interdependence closely. As for the total bilateral trade(including the value of imports and exports), statistics from 2016 show that Taiwan is the seventh largest trading partner of the Mainland; and the Mainland(including Hong Kong)surpasses the United States and Japan to become Taiwan's largest trading partners. If the Greater Chinese Economic Circle is regarded as an economic entity of the same type and with a high degree of trade dependence, there should be a large border effect.

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The innovation of this study is mainly reflected in the existing literature on both sides of the strait trade dependence, usually in the international economic events, such as the Asian financial crisis in 1997, the 2008 financial tsunami as the dividing point analysis of cross-Strait relations; or both sides of the strait as the demarcation point, the time of opening trade should be used to analyze the both sides of the strait dependency. In addition to including the above two major events, this study explores the changes in the trade-related dependence on both sides of the strait at the same time as the exchange of leaders by the Taiwan authorities. This kind of demarcation has not been used in the previous articles.

2. TRADE FLOWS BOTH SIDES OF THE STRAIT

The indirect trade between Taiwan and Mainland China increased from less than $1 billion in 1987 to more than $290 billion in 2016. The dependence of Taiwan's exports on China and Hong Kong's market increased dramatically from less than 8 percent in 1987 to about 40 percent in 2016. Both sides of the strait trade has become the major source of Taiwan's trade surplus in recent years.

3. THE GRAVITY MODEL

The gravity model is widely used as a benchmark to estimate trade flows between countries. Trade flows from country i to country j are modeled as a function of the supply of the export country, the demand of the import country and trade rampart. In other words, national incomes of two countries, transport costs and regional agreements are assumed to be the main determinants of bilateral trade trade. Initially inspired by Newton's gravity law, gravity models have become important tools in the analysis of international trade flows. The first applications were rather intuitive, without theoretical foundations Tinbergen (1962) and Pöyhönen (1963).

Linnemann (1966) proposed a gravity model based on a Walrasian, general equilibrium approach. He explained exports of country i to country j in terms of the interaction of three factors: potential supply of exports of country i, potential demand of imports from country j, and trade barriers. The first variable is a positive function of the exporting country's income level and can also be interpreted as a proxy for product category. The second is a positive function of the importing country's income level. The third is a negative function of trade costs, transport costs, and tariffs.

Helpman (1987) used a model of trade in differentiated products to estimate the share of intra-industry trade for dissociate cross-sections of country pairs for the period 1970–1981. He found that the share of intra-industry trade is negatively correlated with income differences and positively correlated with country size. Also, the more similar factor endowments are, the larger the share of intra-industry trade is. Several other studies (Hummels and Levinsohn, 1995; Evenett and Keller, 2002) have reported similar results.

The gravity model has also been widely used in the applied literature to evaluate the impact of regional agreements (see Carrere (2006); Frankel (1997)) the border effect on trade flows (Anderson and Van Wincoop, 2003) and trade potential (Baldwin, 1994; Péridy, 2005).

4. ECONOMETRIC ANALYSIS

4.1. Data

These data of this study include 1980,1985,1987,1992,1997,2000,2008 and 2016, taking into account six important events: first, in 1987, Taiwan opened up to indirect investment and trade with Mainland China. Second, in 1997, The financial turmoil in Asia, and the global financial tsunami in 2008, Finally, several time points for Taiwan's replacement of leaders in 1992 (Lee Teng-hui), 2000 (Chen Shui-bian), 2008 (Ma Ying-jeou) and 2016 (Tsai Ing-wen). The trade data of Mainland China, Hong Kong, Taiwan, Taiwan, Taiwan and the Mainland are directly taken from the database of the Taiwan Trade Bureau, the Taiwan CMA Department of Statistics and the Taiwan Mainland Affairs Council.

4.2. Model Design

In order to explore the trade dependence between across the Taiwan Strait from the gravity model, this study considers two kinds of regional dummy variables: The first category is the regional dummy variables, which are used to capture the trade relations between the exporting and importing countries belonging to the same regional economic organization; The second type of regional dummy variable is aimed at the trade relations between Mainland China and Taiwan. Here are the instructions:

The first type of regional dummy variables should theoretically cover as many important regional organizations as possible in the world. In this study, we consider the NAFTA, EU, ASEAN, and the Australia-New Zealand Agreement on Economic Relations and Trade (ANZCETA). The definition of these regional dummy variables is as follows: The dummy variable takes 1 if the export and import belong to the relevant region, 0 otherwise. Taking NAFTA (North American Free Trade Area) as an example, if the exporting and importing countries belong to one of the United States, Canada and Mexico, then the regional dummy variable NAFTA = 1, otherwise NAFTA = 0. Similarly, if both importing and exporting countries are EU Member, then EU = 1, otherwise EU = 0, the rest and so on.

The second type of regional dummy variables are basically designed to reflect the trade relations between the three sides of the strait over the past 30 years. These include CHT (Mainland China, Taiwan and Hong Kong), CHT_O (outside the across the Taiwan Strait), the CH (Mainland China and Hong Kong), TH (Taiwan and Hong Kong) and CT (Mainland China and Taiwan).

The estimated equation is the following:

$$LOVT_{ij} = \alpha + \beta_1 GDP_{ij} + \beta_2 GNPPC_{ij} + \gamma DIST_{ij} + \eta_1 NAFTA$$
$$+ \eta_2 EU + \eta_3 ASEAN + \eta_4 ANZCTA + \delta_1 CHT + \delta_2 CH\_O$$
$$+ \delta_3 CH + \delta_4 TH + \delta_5 CT + \mu_{ij}$$

Where:

$LVOT_{ij}$ denotes total trade between countries (regions) i and j;

GDP_{ij} stands for Gross Domestic Product of country(region) i and j;

$GNPPC_{ij}$ stands for the national income of country (region) i and j;

$DIST_{ij}$ represents geographical distance between the capitals of country (region) i and country (region) j;

$\mathcal{E}_{ij}$ is the error term.

4.3. Results

The estimation results using the gravity model are reported in Table. The estimated coefficients are always significant and their signs are consistent with the predictions of the gravity model. GDP and GNPPC have a positive impact on trade volumes. Geographical distance is negatively related to trade volumes as expected. However, the estimates of geographical distance are declining year by year; from -0.753 in 1985 to -0.429 in 2015. This result reflects that the blocking effect of distance on trade diminishes with the advancement of shipping technology.

Before 1990, the intra-regional trade in the across the Taiwan Strait was abnormal (the coefficient of CHT was significantly positive) while the trade flow between mainland China and Taiwan was low (a clear negative value of the CT-estimated coefficient), which indirectly proved that Hong Kong play a trade intermediary role in the across the Taiwan Strait. In addition, the CH and TH coefficients ranged from 6.2577 to 8.4452 before 1990. This result not only reflects the performance of Hong Kong and Mainland China (CH), and the bilateral trade between Taiwan and Hong Kong (TH), but also exceeds the level of its economic development. Therefore, it is even more certain that Hong Kong play the role of trade intermediary on both sides of the Taiwan Strait over the past 30 years. (the CH estimates of 8.1542 to 9.5725 and the TH estimates of 6.2577 to 7.5961.)

Trade between Taiwan and mainland China was low in the first half of the 1980s (CT were -7.8880 in 1980 and -8.0251 in 1985), but the trend began to turn positive in 1990, resulting in an extraordinary trade-intensive relationship (The estimated coefficients for 1987, 1992, 1997, 2000, 2008 and 2016 are 8.2058, 8.2751, 8.5536, 8.3024, 8.7443 and 8.9963, respectively). The trade effect of the thawing of cross-Strait in 1987 can be proved by this positive evidence. And it still has a high degree of trade dependence on both sides of the Strait after the rotation of political parties in Taiwan.

Although the trade density between mainland China and Taiwan was high in 1980 and 1985 (the coefficient of CHT estimation was significantly greater than 0), the opening up to both sides of the Taiwan Strait was apparently not enough (the estimated value of CHT_0 was significantly less than 0 before 1990 -1.726 in 1980 and -2.715 in 1985). If we do not consider the trade between Taiwan and Hong Kong, the performance of the mainland's foreign trade will be far below the level expected by its economic development. After 1990, whether it is for Taiwan or other regions, the degree of opening up of the Mainland China's foreign trade has clearly been on the high side. (That is, the estimated coefficients of CHT and CHT_O are no less than 0 and significant after 1987)

Table- The result of trade gravity model

Explained variable: LVOT

Variables	1980	1985	1987	1992	1997	2000	2008	2016
LGDP	0.1721*** (0.012)	0.2164*** (0.010)	0.1743*** (0.011)	0.1589*** (0.013)	0.2003*** (0.012)	0.2212*** (0.011)	0.1953*** (0.009)	0.2161*** (0.012)
LGNPPC	0.0928*** (0.022)	0.1241*** (0.026)	0.2580*** (0.029)	0.3617*** (0.034)	0.2749*** (0.030)	0.2438*** (0.028)	0.2021*** (0.022)	0.2674*** (0.023)
LDIST	-0.4325*** (0.028)	-0.7326 (0.024)	-0.6549 (0.036)	-0.7275 (0.031)	-0.6310 (0.033)	-0.5210 (0.032)	-0.3125 (0.031)	-0.3127 (0.033)
NAFTA	2.7362*** (0.213)	3.0351*** (0.191)	2.8820*** (0.234)	3.115*** (0.233)	2.7456*** (0.120)	2.8531*** (0.120)	2.9753*** (0.135)	3.1274*** (0.141)
EU	3.2341*** (0.135)	3.5039*** (0.112)	3.1754*** (0.145)	3.1982*** (0.146)	3.2175*** (0.119)	3.0174*** (0.116)	3.0749*** (0.113)	3.4236*** (0.125)
ASEAN	1.1527*** (0.184)	1.1823*** (0.163)	1.7155*** (0.161)	2.1391*** (0.173)	1.9882*** (0.147)	1.5348*** (0.145)	1.8021*** (0.134)	2.1235*** (0.127)
ANECETA	2.0784*** (0.264)	2.1732*** (0.260)	2.2460*** (0.320)	1.9221*** (0.358)	1.8553*** (0.228)	1.8674*** (0.243)	1.7052*** (0.234)	1.7759*** (0.231)
CT_O	-1.726*** (0.162)	-2.715*** (0.392)	2.243*** (0.425)	2.156*** (0.543)	1.877*** (0.520)	1.077*** (0.410)	1.392*** (0.392)	2.358*** (0.364)
CHT	3.484*** (0.256)	3.518*** (0.271)	3.334*** (0.249)	2.111*** (0.283)	3.125*** (0.314)	3.103*** (0.296)	3.157*** (0.301)	3.098*** (2.887)
CH	8.1542*** 3.483)	8.3345*** (3.351)	8.4452*** (3.344)	8.7721*** (3.530)	8.9125*** (3.235)	9.0242*** (3.325)	9.5725*** (3.225)	9.2998*** (3.226)
TH	6.8242*** (3.618)	6.2577*** (3.501)	6.2652*** (3.452)	6.5340*** (3.292)	6.3460*** (3.434)	6.2589*** (3.513)	7.5671*** (3.236)	7.5961*** (3.225)
CT	-7.9826*** (3.482)	-8.0251*** (3.484)	8.2058*** (3.320)	8.2751*** (3.368)	8.5536*** (3.599)	8.3024*** (3.349)	8.7443*** (3.256)	8.9963*** (3.135)
N	3 124	4 259	4 329	5 182	6 171	6 261	7 163	7 230
R²	0.7243	0.7746	0.7148	0.7663	0.7652	0.7769	0.7771	0.7140

Note: Robust t-statistics are in parentheses below the coefficients. ***, ** and * denote significance levels of 1%, 5% and 10%, respectively.

5. CONCLUSIONS

In this paper, we have investigated the evolution of trade flows between Mainland China, Taiwan and Hong Kong. Results show that the economic structures in both Mainland China, Taiwan and Hong Kong as well as the cross-Strait economic relationship will undergo substantial changes due to economic open. The most important finding of our analysis is Hong Kong play the role of special economic and political events in shaping the greater Chinese circle's trade pattern. The economic dependence of Taiwan on Mainland China will further increase and enable Mainland China to replace the US as the largest export market. Some extent that the trade flows within Greater China are far above the normal level implied by their corresponding economic conditions and the

geographical relationship. The trade flows between Taiwan and the Mainland China were once highly suppressed by the political situation but reached to its exceeded normal in 1995 and after, indicating a growing mutual economic and trade dependency within Greater China. The open-policy of China declared in 1979 was indeed ineffective for the first few years, only increasing to some extent its trade with Taiwan and Hong Kong. It was not until 1987 that Mainland China's open-policy became really global and effective.

REFERENCES

Anderson, J.E. and E. Van Wincoop, 2003. Gravity with gravitas: A solution to the border effect puzzle. American Economic Review, 93(1): 170–192. *View at Google Scholar | View at Publisher*

Baldwin, R., 1994. Towards an integrated Europe. London: CEPR.

Carrere, C., 2006. Revisiting the effects of regional trading agreements on trade flows with proper specification of gravity model. European Economic Review, 50(2): 223–247. *View at Google Scholar | View at Publisher*

Evenett, S.J. and W. Keller, 2002. On theories explaining the success of the gravity equation. Journal of Political Economy, 11(2): 281–316. *View at Google Scholar | View at Publisher*

Frankel, J., 1997. Regional trading blocs in the world economic system. Washington: Institute for International Economics.

Helpman, E., 1987. Imperfect competition and international trade: Evidence from fourteen industrial countries. Journal of the Japanese and International Economies, 1(1): 62–81. *View at Google Scholar | View at Publisher*

Hummels, D. and J. Levinsohn, 1995. Monopolistic competition and international trade: Reconsidering the evidence. Quarterly Journal of Economics, 110(3): 799–836. *View at Google Scholar | View at Publisher*

Linnemann, H., 1966. An econometric study of international trade flows. Amsterdam: North-Holland Pub. Co.

Péridy, N., 2005. Towards a new trade policy between the USA and Middle-East countries: Estimating trade resistance and export potential. World Economy, 28(4): 491-518. *View at Google Scholar | View at Publisher*

Pöyhönen, P.A., 1963. Tentative model for the volume of trade between countries. Welwirtschftliches Archiv, 90(1): 93–100. *View at Google Scholar*

Tinbergen, J., 1962. Shaping the world economy: Suggestions for an international economic policy. New York: The Twentieth Century Fund.